SEVERE EPISTAXIS, DIFFICULT TO CONTROL

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Simple epistaxis arising from an abraded or leaking capillary of the septum is a common occurrence, and is sealed easily by the galvano-cautery. Ninety per cent. of cases of epistaxis probably arise from this source. If the accompanying drawing of the nasal blood supply is

Sagittal section of nose, showing the arteries on the right side of the septum. 1: Quadrilateral cartilage. 2: The vomer. 3: The locus Kiesselbachii, or vascular area. 4: Septal branch of the superior coronary artery. 5: Palatine branch. 6: Ethmoidal branches of the ophthalmic artery. 7: Spheno-palatine artery from the internal maxillary artery.

(*Diseases of the Nose and Throat*, by Sir StClair Thomson and V. E. Negus. Published by Messrs. Cassell and Co., Ltd.)

studied, it will be seen that the upper part of the nose in the olfactory cleft is supplied by the anterior and posterior ethmoidal arteries arising in the orbit from the ophthalmic artery, a branch of the internal carotid artery. The lower and greater part of the nasal septum is supplied by the naso-palatine artery given off by the spheno-palatine artery, a branch of the internal maxillary artery of the external carotid. The naso-palatine artery branches off at the spheno-palatine foramen, and crosses the cavity of the nose on the under surface of the floor of the sphenoidal air sinus. This artery forms a network of capillaries to anastomose with the septal branch of the superior coronary, lying on the lower edge of the septum just within the nostril. Other branches of the spheno-palatine artery pass to the inferior turbinal and lower edge of the middle turbinal. It will be seen that the upper part of the nose is supplied by the internal carotid, and the lower part of the nose by the external carotid—a point to be remembered if a large main artery has to be ligatured to arrest copious haemorrhage. The mechanism controlling the volume of blood circulating in the nose is very sensitive. It responds quickly to changes of temperature, changes in the position of the head, to exertion both physical and mental, and also to emotion. Any of these factors may convert a slight epistaxis into a profuse haemorrhage. Therefore, patients suffering from severe epistaxis should be kept at rest in an equable temperature and in a sitting position. The difficult cases are: (1) epistaxis due to

injuries to the head or nose; (2) epistaxis of unknown origin in old people; (3) epistaxis due to disorders of the blood, such as severe anaemia, leukaemia, etc.; (4) epistaxis due to hereditary multiple telangiectasis.

Epistaxis due to Head or Nose Injuries

Epistaxis arising from injuries to the head or nose, though common, often stops spontaneously, but there are cases in which even plugging and other methods may fail. A trivial injury such as a blow on the back of the head, or more severe injuries such as fracture of the nasal bones or fracture of the skull, may result in copious haemorrhage often difficult to control. Such haemorrhage arises from the roof of the nose in the olfactory cleft, and in a position difficult to plug efficiently. The following is an example of such an injury.

A healthy youth of 17 received at midday a blow on the nose from a fist, which fractured the nasal bone and nasal process of the maxilla. Haemorrhage was so copious that plugging failed to arrest it, and in spite of blood transfusions he died the same night from haemorrhage. At the post-mortem examination it was found that the anterior ethmoidal artery had been ruptured. If a diagnosis of the source of the bleeding could have been made, ligature of the ethmoidal arteries would have saved his life. This operation is done by making an incision along the inner third of the supra-orbital margin to below the inner canthus of the eye to expose the roof and inner wall of the orbit, and with patience the artery can be picked up without difficulty.

Fissured fractures of the anterior fossa of the skull involving the roof of the nose, with the loss of sense of smell, are common, and still more common in the roof of the orbit with the classical subconjunctival haemorrhage. The ethmoidal arteries have a short intracranial course across the roof of the nose, where they are easily ruptured. A fracture of the middle fossa, in which the fracture takes the line of the anterior edge of the petrous bone across the sphenoidal air sinus, may open the cavernous sinus or internal carotid artery. Such an injury means almost immediate death from haemorrhage, but a number of cases of arteriovenous or orbital aneurysm of the cavernous sinus and internal carotid have been recorded in which the patients have survived. The sphenoid air sinus is opened in about 70 per cent. of fractures of the middle fossa of the skull.

The following case, with copious epistaxis, may be quoted.

A soldier was admitted to hospital on July 10, 1938, after a motor-cycle accident; he was unconscious for forty-eight hours. There was a haematoma of the right eye, and laceration of the scalp in the right temporal region. He was discharged on August 19, with blindness and optic atrophy of the right eye. There was no paresis of the cranial nerves. On October 4 copious right epistaxis occurred. On November 2 he was admitted to another hospital with epistaxis. The blood pressure was then 150/100, and the haemoglobin 50 per cent. X-ray examination was negative. The blood-clotting time was five minutes. On November 5 epistaxis again occurred, and on December 21 the sight of the left eye was lost. There was epistaxis at six-day intervals, and the haemoglobin went down to 48 per cent. and the red cells to 2,970,000 per c.mm. On January 17, 1939, after a blood transfusion, the patient was transferred to London. No leak of cerebrospinal fluid from the nose was observed. X-ray examination was negative. The patient was drowsy and complained of headache. The right eye was completely blind; the pupils were dilated and did not react to light. There was ptosis of the right upper eyelid, and complete right third cranial nerve paralysis. The fifth cranial nerve was normal. The left eye was blind. Examination of the nose showed a blood-clot on the right side and a slight ooze of watery blood from the roof. Two pints of blood were lost on

January 13. The following day the patient was seen by Professor Hugh Cairns. Aneurysmal bruit was heard with the stethoscope applied to the temporal fossa. The bruit was arrested by compression of the right common carotid artery. A diagnosis of intracranial aneurysm of the internal carotid artery was made, and Colonel Weddell and Major Hare ligatured the right common carotid artery. The patient had no further epistaxis for a few days, but later a little occurred on two occasions. The paralysis of the third cranial nerve improved and the general condition became much better. Epistaxis, though less, returned, and on February 3 the external carotid artery was ligatured. At the time of this ligature the external carotid showed no pulsation.

Incidentally, Bathe Rawlings (1904) collected twenty cases of orbital aneurysm following fractures of the skull, but he does not mention epistaxis. In twelve cases the common carotid artery was ligatured, with great improvement in the symptoms of aneurysm. Ligature of the common carotid, however, does not always control epistaxis. Repeatedly the severe haemorrhage from an epitheliomatous ulcer of the lateral wall of the nose or of the nasopharynx was not arrested by ligature of the common carotid. Cases of copious epistaxis requiring ligature of the common carotid must be very rare, and it is only when all other methods of control have failed, when life is endangered, and when there is an intracranial aneurysm of the internal carotid that ligature is considered.

Geoffrey Jefferson (1938) records a case of severe epistaxis following an operation for nasal polypi in which the haemorrhage forced the plug out of the nose. Ligature of the internal carotid in the neck immediately arrested the haemorrhage. The case was diagnosed as an intracranial aneurysm of the internal carotid, and is one of sixteen cases of this aneurysm recorded by Jefferson. There was a history of epistaxis in only one other of these sixteen cases.

Cerebrospinal rhinorrhoea, as the result of an injury in which the dura mater is torn by a fracture of the roof of the nose near the anterior or posterior ethmoidal artery, is frequently preceded by haemorrhage. In such cases packing of the nose should be avoided if possible, because the blood will be dammed up in the anterior fossa of the skull and the packing may give rise to sepsis. Meningitis is a late result of cerebrospinal rhinorrhoea, and occurs when the nose becomes infected. This haemorrhage is controlled by sitting the patient up on a Fowler bed, or one of its modifications, and giving injections of morphine and 5 c.cm. of intravenous haemostatic serum (for an adult). To safeguard against anaphylaxis a preliminary dose of 2 c.cm. of haemostatic serum is injected into the vein, and if all is well the remaining 3 c.cm. is given. Haemostatic serum is more effective when injected into a vein than when injected into a muscle. It may be necessary to ligature the ethmoidal arteries. Professor Hugh Cairns (1937) has recorded cases of cerebrospinal rhinorrhoea and their treatment by operation.

Epistaxis in Old People

In old persons epistaxis comes on spontaneously, frequently in the early morning, after sleep, or on lying down at night. Attacks of haemorrhage may recur for two or three days. A few of these patients complain of headache or fullness of the head preceding the attack, and state that the bleeding gives them considerable relief. It is difficult to find the bleeding-point, and there is usually a general ooze from multiple points on the septum. The underlying cause cannot be ascertained in the majority of

these cases, but it is assumed that the condition arises from a disorder of the cardiovascular system, and is called physiological. It, however, is a source of great discomfort and anxiety to the patient, and he is never willing to allow it to continue unchecked. Such a patient is made to sit bolt upright with the nose and chin depressed. He is told to compress the nostril firmly against the septum with the finger and thumb. Then a pledget of wool soaked in a solution of 20 per cent. cocaine is placed on the septum well within the nose. Next, the narrowest ribbon gauze soaked in a 20 per cent. solution of cocaine, with an equal quantity of Parke, Davis adrephine inhalant, is packed into the nose after the removal of the pledget of wool. A 1 in 1,000 solution of adrenaline should be avoided because it produces a violent coryza in most people and a return of the haemorrhage when the plug is removed or blown out. If the gauze plug is taken away after ten minutes it may be possible to detect the bleeding-point or the area of haemorrhage. If there is a definite bleeding-point it can be sealed by the dull-red galvano-cautery, or gauze generously impregnated with ferropyrine powder packed on to the bleeding area. The gauze plug should not remain in the nose longer than twenty-four hours without being removed or replaced. If these local applications are not successful, or if there is a return of the haemorrhage, an injection of $\frac{1}{4}$ grain of morphine should be given. Indeed, this is one of the best remedies for severe epistaxis, particularly for that following an operation. An intravenous colloidal calcium injection is favoured by some, but it is not as effective as morphine. At a suitable time the patient's general condition should be thoroughly investigated, not forgetting a blood examination, a record of the blood pressure, urine, etc. Very old people cannot tolerate severe epistaxis, and some of them never seem to recover completely.

Epistaxis due to Blood Disorders

Epistaxis arising from a disorder of the blood is very troublesome; it takes the form of a general ooze from the septum and there is no actual bleeding-point. Local treatment is unsatisfactory, and better results are obtained by blood transfusions, intravenous haemostatic serum, and morphine. If, of course, a bleeding-point or a suspicious point is found, the galvano-cautery, when carefully applied, is useful. Instead of gauze plugging, a small thin rubber bag or balloon is attached to a small flexible rubber tube for inflation and is placed well within the nose. The balloon is inflated like a de Ribes bag, and the air is retained by tying the rubber tube into a knot. The rubber bag is more effective than gauze for a general ooze.

Epistaxis arising from Multiple Telangiectasis

In hereditary multiple telangiectasis there are a number of purpuric spots on the septum which bleed furiously and frequently when abraded. The application of the galvano-cautery often fails to arrest the haemorrhage even when applied to the bleeding spot or spots. In fact, the cautery temporarily increases the haemorrhage. The best method of control is by the inflated rubber bag. Electrocoagulation, radium, and submucous resection of the septum to raise the mucosa from the septum, and scarring, have failed. G. H. O'Kane (1938) has given with success repeated submucous injections of 5 per cent. solution of quinine and urethane injected near the telangiectases. In addition to the above there are cases of epistaxis in which the cause and source of the bleeding are obscure, and it is this uncertainty which adds to the difficulty of control.

Summary

The mechanism controlling the volume of blood circulating in the nose is described, together with the factors that lead to severe epistaxis.

The difficult cases are classified into four groups, each of which is discussed separately, along with the appropriate treatment.

A typical case of copious epistaxis is quoted.

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Clinical Memoranda

A Case of Onychogryphosis

The following case may be of general interest because, although the condition is fairly common, such a severe degree is not often seen.

The patient was a woman aged 74, who was admitted to hospital as a cardiac case. She was in a very dirty condition, though not verminous, and suffered more from old age than from heart disease. On being put to bed her toe-nails at once attracted attention. The nails of the big toes were thickened and lengthened to a great extent and curved back upon themselves in a remarkable way (see photograph). The

other toe-nails were also hypertrophied, but not to the same degree. The finger-nails were not deformed. There were no ulcers at the points where the nails rested on the skin, and this was apparently due to the fact that the nails were fairly mobile and did not press continuously on any one point. On the soles of the feet, over the heads of the third metatarsals, were two sore areas, presumably caused by pressure from the footwear.

When questioned about the nails the patient became shy, and, being difficult to understand at the best of times, she was unable to give us a very good history. She told us, however, that they had been big for thirty years, but that she cut them once a fortnight! She had been able to wear either boots or shoes until taking to bed a few days previously.

The question of removing the nails does not arise at present, for the patient refuses to part with them, and it was only by assuring her that I did not intend to touch them that she agreed to be photographed.

I am grateful to Dr. Williamson, medical officer of Preston Hospital, North Shields, for permission to publish the above.

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Recurrent Tubal Pregnancy

The following case is, I think, of sufficient interest to warrant publication.

CASE RECORD

A married woman aged 35 was admitted into the Government Hospital for Women and Children, Madras, on September 19, 1938, complaining of swelling and pain in the lower abdomen. There was nothing of interest in her previous history. Two years before she had her first child after having been married for eight years. She then had her periods regularly for a year, but for the last twelve months they had been irregular and scanty, lasting one or two days. She was very vague about this point, and in the out-patient department had previously given a history of amenorrhoea for a year. With the menstrual changes she had also been having slight and continuous pain in her lower abdomen, and had noticed a swelling in the abdomen which had gradually increased in size. Ten days before admission the abdominal pain became more severe, and she had, too, pain in the chest. There had also been a slight, reddish, watery, vaginal discharge.

Examination at the time of admission revealed a pale and ill-nourished woman with a pulse rate of 90 and a normal temperature. The haemoglobin content of her blood was 35 per cent.; the urine showed no abnormality. Abdominal examination disclosed a tumour movable from side to side, irregular in outline, large and cystic on the right side, and hard, nodular, and small in size on the left side. It extended up to the umbilicus and was not tender. Vaginal examination revealed that the tumour moved with the cervix. She was thought to be a case of fibroids of the uterus, and laparotomy was undertaken on September 26, 1938, after her haemoglobin content had risen to 65 per cent.

Her abdomen was opened by a suprapubic incision, under spinal anaesthesia, by Lieutenant-Colonel C. M. Plumtre. The body of the uterus was enlarged to twelve-weeks size and was displaced to the left by what was apparently a broad-ligament cyst on the right side, with no evidence of tube or ovary. This cyst was closely adherent to the body of the uterus. While trying to separate the cyst from the uterus a live foetus of about six-months size escaped. The placenta was completely within the broad ligament. There was no evidence of the left tube; the left ovary was normal and adherent to one end of a lithopaedion, the size of a small pear, attached to the broad ligament by a small pedicle and to the great omentum. Subtotal hysterectomy was done leaving the left ovary behind. The placenta was removed entire, along with the broad ligament; the abdomen was closed in layers.

Afterwards the specimens obtained at operation were examined. The uterus corresponded in size to a three-months pregnancy; the endometrium was thick and easily separated from the body of the uterus. The foetus, of six-months size, was attached by the umbilical cord to the placenta contained in the right broad ligament. The lithopaedion was about the size of a foetus of three to four months. Pathological examination of a piece of soft tissue attached to the lithopaedion showed the remains of the Fallopian tube. The patient's immediate post-operative condition was satisfactory, except for some fever for two days; later she was discharged cured.

My grateful thanks are due to Lieutenant-Colonel C. M. Plumtre, I.M.S., for allowing me to report the case, and to the superintendent of the Government Hospital for Women and Children, Madras, for permission to use the hospital records.

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Madras